

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2008 question paper

0580, 0581 MATHEMATICS

0580/11, 0581/11 Paper 12 (Core), maximum raw mark 56

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes must be read in conjunction with the question papers and the report on the examination.

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Abbreviations

aro	Answer rounding to
BOD	Benefit of the doubt is to be given to the candidate
CAO	Correct answer only
eeo	Each error or omission
NR	Answer space is completely blank
o.e.	or equivalent
SC	Special Case
www	Without wrong working
ft or $\sqrt{}$	Work has been followed through after an error
dep	Dependent on the previous mark

Qu	Answer	Mark	Part Marks/Notes
1	13	1	
2	2 (h) 16 (min) cao	1	If not in the answer space units must be clear. E.g. Not 2:16 or 2.16.
3	196	1	
4	10	1	
5	$33(\%) < \frac{1}{3} < 0.35$	1	Accept the values in any form. $\frac{1}{3}$ must be to 3 or more s.f.
6	-14	1	
7	3.62×10^{-3} cao	1	
8	(a) 2	1	
	(b) 2	1	
9	(\$1278	2	M1 $284 \div 2 \times 9$ or $284 \times \frac{9}{2}$ or better.
10	$11.5 \leq h < 12.5$	1 + 1	1 mark for each value in correct place.
11	(\$1.40 or 140 cents	2	M1 $2.45 \div (4 + 3)$ implied by 0.35. SC1 for answer 140. For answer in cents units must be stated.
12	(a) $\frac{13}{24}$ isw	1	Ignore further attempts at cancelling in (a) and (b). Allow equivalent fractions in (a) and (b). SC1 Both correct but written as decimals or %. (Give mark in part (b)).
	(b) $\frac{11}{20}$ isw	1	
13	7.5 or $7\frac{1}{2}$	2	M1 $\frac{1}{2} \times 8 \times h = 5 \times 6$ or better. Implied by $\frac{30}{4}$ or $\frac{15}{2}$ seen.



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14	(a) 35.81415(6...) or 35.8188 or 35.796	1	π from calculator value or 3.142 or 3.14 respectively.
	(b) 36 (cm) (Ignore trailing zeros)	1 ft	36 or follow through from their (a) but only if the answer to (a) is greater than 1.
15	Vertices (3,1), (5,1), (2,4), (0,4) and ruled parallelogram drawn.	2	M1 3 or 4 vertices correctly plotted. If M0, SC1 Correct reflection in $y = 3$. (3,5), (1,5), (4,2), (6,2).
16	4.578 to 4.58	2	M1 $2.4^2 + 3.9^2$ or better. Square root not essential for M1. Implied by 20.97 or $5.76 + 15.21$ seen.
17	(\$)1.14 or 114 cents	2	M1 $8 \times 0.68 - 2 \times 2.15$ or $8 \times 68 - 2 \times 215$. For answers in cents units must be stated.
18	$3x(2 - 3xy)$ final answer	2	SC1 $3(2x - 3x^2y)$ or $x(6 - 9xy)$ or $3x(2 + 3xy)$ as answers.
19	(a) (i) -27 (ii) -48	1 1	
	(b) z	1	Allow z^1 .
20	(a) $\sqrt{4}$ or 2	1	
	(b) $\sqrt{81}$ or 9	1	
	(c) $\sqrt{64}$ or 8	1	
	(d) $\sqrt{14}$ or 3.7(4...)	1	
21	(a) 25	1	
	(b) 43	1	
	(c) $3n + 10$ oe final ans.	2	SC1 $3n + k$ oe ($k \neq 10$) as answer.
22	(a) 12	1	
	(b) (i) $0.83(3...)$ or $\frac{10}{12}$ oe isw (ii) 49.8 to 50	1 1 ft	ft $60 \times$ their (b)(i) correct to 3sf.
	(c) 46	2	W1 for ($CD =$) 12 seen in working space, or answer line or between dotted lines at C and D .



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23	(a) (\$)1020	2	M1 for $\frac{4000 \times 3 \times 8.5}{100}$ or SC1 for 5020 final ans.
	(b) (\$)1038.85 Allow 1039 or 1038.848 or 1038.8 or 1038.9 or 1038.84	3	M2 for $4000 \times \left(1 + \frac{8}{100}\right)^3$ or better. or M1 for $4000 \times \left(1 + \frac{8}{100}\right)^2$ or better. Alt. M1 for $(4000 + 4000 \times 0.08) \times 0.08$. M1 dep for 4665.60×0.08 . (NB Interest only method)
24	(a) (i) $\begin{pmatrix} 0 \\ 4 \end{pmatrix}$	2	1 mark for each component.
	(ii) $\begin{pmatrix} -4 \\ 4 \end{pmatrix}$	2	1 mark for each component.
	(b) Line segment from P to $(-1, 6)$	2	W1 for $(-1, 6)$ indicated or $\begin{pmatrix} -2 \\ 4 \end{pmatrix}$ seen anywhere. If zero, SC1 for line segment from P to $(-1, k)$ or to $(k, 6)$ or a line through P and $(-1, 6)$.

